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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/054,374

01/22/2002

Gerard J. Sullivan

Honeywell No.

5884

A11-26110US

7590

05/20/2004

EXAMINER

ZARNEKE, DAVID A

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ART UNIT

PAPER NUMBER

2827

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/054,374

Applicant(s)

SULLIVAN ET AL.

Examiner

David A. Zarneke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 20-28 is/are pending in the application.
- 4a) Of the above claim(s) 20-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/5/04 has been entered.

Response to Arguments

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the three-dimensional (3-D) packaging being a final product) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant argues that the now require the 3-D packaging of platelets wherein the 3-D packaging means that it is a final product and can not be a temporary stacking used during the production of the chips.

The examiner asserts that the claims do not require the packaging to be a final product. The claims only require the 3-D packaging of platelets, which Distefano teaches in Figure 2F as outlined in the previous office action.

Further, the recitation of the 3-D packaging has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 10-13, 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Distefano et al., US Patent 5,834,339.

Distefano teaches a system for three-dimensional packaging of platelets (Figure 2F), comprising in combination:

a slotted file (285); and

a plurality of platelets (280) which fit into the slotted file wherein no pressure is required to hold the platelets within the slotted file.

Regarding claim 2, Distefano teaches the slotted file has at least three walls (Figure 2F).

With respect to claim 4, Distefano teaches the slotted file has at least two sidewalls and at least one back wall (Figure 2F).

As to claim 10, Distefano teaches at least one back wall is connected to an end of each of the at least two side walls to form a "U" shape (Figure 2F).

In re claim 11, Distefano teaches the plurality of grooves on the at least two side walls face directly across from each other (Figure 2F).

Regarding claim 12, Distefano (Figure 2D) teaches the plurality of platelets is comprised of a semiconductor chip (200) placed into a chip carrier (280).

With respect to claim 13, Distefano (Figure 2D) teaches the chip carrier has a floor (225) and a frame (280).

As to claim 17, Distefano (Figures 2D & 2G) teaches the floor (225) has a plurality of electrodes (pads under 210).

In re claim 18, Distefano teaches the semiconductor chip is placed face down on the floor contacting the plurality of electrodes (Figures 2D & 2G).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3 and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Distefano et al., US Patent 5,834,339, as applied to claims 1 and 2 above, and further in view of Vafai, US Patent 6,457,515.

Vafai teaches the use of silicon as a heat sink material (2, 51+).

The substitution of one known equivalent technique for another may be obvious even if the prior art does not expressly suggest the substitution. Ex parte Novak 16

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USPQ 2d 2041 (BPAI 1989)*, In re Mostovych 144 USPQ 38 (CCPA 1964), In re Leshin 125 USPQ 416 (CCPA 1960), Graver Tank & Manufacturing Co. V. Linde Air Products Co. 85 USPQ 328 (USSC 1950).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the Si of Vafai as the heat sink wall material of Johnson because Vafai teaches that Si is a suitable heat sink material.

Regarding claim 5, while Johnson teaches the sidewalls (44 & 46) as having a plurality of grooves (40 & 42), Johnson fails to teach the grooves as being etched.

It would have been obvious to one of ordinary skill in the art at the time of the invention to etch the grooves of Johnson because etching is a suitable and commonly used method of forming openings/grooves in materials.

The use of conventional materials or methods to perform their known functions in a conventional process is obvious. In re Raner 134 USPQ 343 (CCPA 1962).

With respect to claims 6-9, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the depth and spacing of the grooves to meet standard requirements (MPEP 2144.05(b)).

Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Distefano et al., US Patent 5,834,339, as applied to claims 1 above, and further in view of King et al., US Patent 5,140,405.

Distefano fails to teach the details of the floor and frame recited in claims 14-16.

Regarding claim 14, the use of ceramic as the material of which the floor and frame of a chip carrier are made is conventionally known in the art. barring a showing

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of unexpected results, the use of conventional materials to perform there known functions in a conventional process is obvious. In re Raner 134 USPQ 343 (CCPA 1962).

With respect to claim 15, King teaches a semiconductor assembly comprising a chip carrier having a floor (40) and a frame (42), wherein the floor extends beyond the edges of the frame to form flanges (Figure 6).

Regarding claim 16, King teaches the flanges as fitting into the grooves of a motherboard or other application (1, 31+). While not specifically stating its use in a stacked chip module, one of ordinary skill in the art would know that the "other applications" referred to would include stacked chip modules.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the invention of King in the invention of Distefano because the use of ceramic, the forming of flanges and the insertion of the flanges into a slotted file are all an obvious matter of design choice. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(d)).

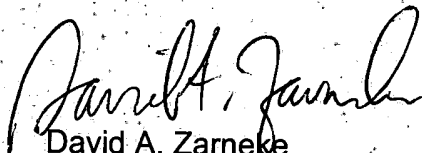
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Zarneke whose telephone number is (571)-272-1937. The examiner can normally be reached on M-F 10 AM-6PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571)-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David A. Zarneke
Primary Examiner
May 17, 2004
